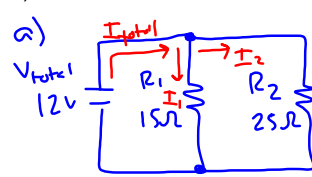


1. A 12 V battery is connected in parallel with two resistors, each on their own branch. One resistor has a value of 15 ohms, and the other has a resistance of 25 ohms.

a) Draw the circuit.

b) Calculate the current through each branch.

c) Calculate the total current.



b)

$$I_1 = \frac{V_{total}}{R_1}$$

$$= \frac{12V}{15\Omega}$$

$$= 0.8A$$

c)

$$I_{total} = I_1 + I_2$$

$$= 0.8A + 0.48A$$

$$= 1.28A$$

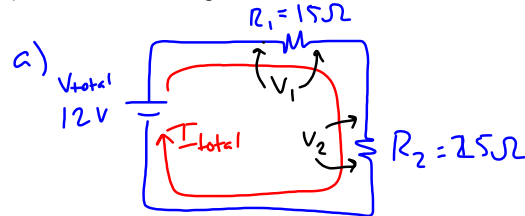
$$I_2 = \frac{V_{total}}{R_2} = \frac{12V}{25\Omega} = 0.48A$$

2. A 12 V battery is connected in series with two resistors. One resistor has a value of 15 ohms, and the other has a resistance of 25 ohms.

a) Draw the circuit.

b) Calculate the total resistance and total current.

c) Calculate the voltage across each resistor.



b)

$$R_{total} = R_1 + R_2$$

$$= 15\Omega + 25\Omega$$

$$= 40\Omega$$

$$V_{total} = I_{total} R_{total}$$

$$I_{total} = \frac{V_{total}}{R_{total}}$$

$$= \frac{12V}{40\Omega}$$

$$= 0.3A$$

c)

$$V_1 = I_{total} R_1 = (0.3A)(15\Omega) = 4.5V$$

$$V_2 = I_{total} R_2 = (0.3A)(25\Omega) = 7.5V$$